Biotechnology Validation

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_ /28

1. Bioinformatics requires a lot of information to be compared. Development in which area of technology has allowed this?

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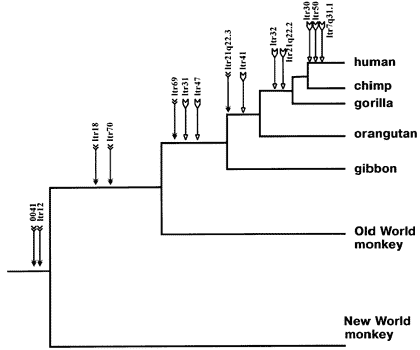
(1 mark)

1. A. What are ERVs and how do they support the theory of evolution?

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(4 marks)

B. The Study of ERVs has allowed the diagram below to be drawn.



According to this diagram which group of organism would share the most ERVs with humans?

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(1 mark)

1. Why are ubiquitous proteins useful when studying evolution?

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(1 mark)

1. DNA Gel Electrophoresis. In point form explain how the process of DNA Gel Electrophoresis occurs.

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(8 marks)

1. In 2008, paleoanthropologists digging in a cave in southern Siberia unearthed a 40,000-year-old adult tooth and one finger bone that had belonged to a young girl who was between five and seven years old when she died. Study of the DNA from the tooth showed that it and the finger bone belonged to a species of human called Denosivan (Homo altai).

In point form describe how such a small fragment of DNA could be amplified to allow enough DNA to study the Denosivans.

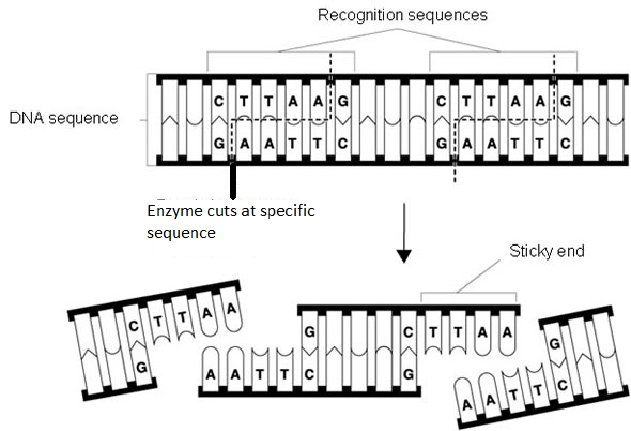
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(8 marks)

1. Use the diagram below to answer the question that follows.



1. What type of enzyme is being used here?

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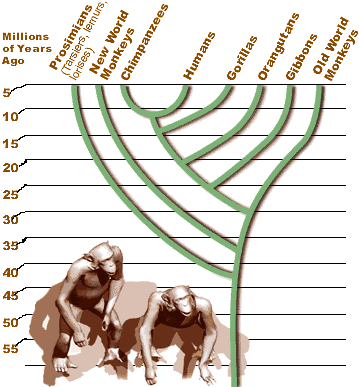
(1 mark)

1. Although these enzymes can now be made synthetically, where were they originally sourced from?

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(1 mark)

1. Use the diagram below to answer the questions that follow.



1. This diagram is an example of a what?

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(1 mark)

1. Evolutionarily which is most closely related to Chimpanzees, gorillas or orang-utans?

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(1 mark)

1. Approximately how long ago did Humans, Chimpanzees and Gorillas diverge from a common ancestor?

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(1 mark)